

Claims

1. A method of providing information regarding the location of a mobile user equipment in a system wherein the location is determined based on information
5 signalled from entities of a positioning system and assistance data signalled from a station of a communication system, comprising:
determining the likely location of the mobile user equipment relative to the station;
based on the determined likely location, determining an estimate of the
10 delay between transmission of a signal from the station and reception of said signal at the mobile user equipment;
signalling assistance data from the station to the mobile user equipment, said assistance data comprising information about the timing of the positioning system; and
15 accomplishing a more accurate location determination at the user equipment based on signals from the entities of the positioning system, the assistance data and said estimated delay.
2. A method as claimed in claim 1, wherein information about the estimated
20 delay is transmitted from the station to the mobile user equipment.
3. A method as claimed in claim 1, wherein the estimate of the delay is determined at the mobile user equipment.
- 25 4. A method as claimed in any preceding claim, wherein the entities of the positioning system comprise at least one satellite.
5. A method as claimed in claim 4, wherein the positioning system comprises the global positioning system (GPS).
- 30 6. A method as claimed in any preceding claim, wherein the delay estimate is used to relate the timing of the positioning system with the time at which the

mobile user equipment is likely to receive a certain signal from the communication system.

7. A method as claimed in any preceding claim, wherein the delay estimate is used to relate the timing of the positioning system with the time at which the mobile user equipment is likely to receive said assistance data signal.

8. A method as claimed in any of claims 1, 2 or 4 to 7, wherein said delay estimate is included in the assistance data.

9. A method as claimed in any preceding claim, wherein the likely location of the user equipment is estimated based on information about the mass center of the coverage area of the station.

10. A method as claimed in claim 9, comprising use of information about a weighted mass centre.

11. A method as claimed in any preceding claim, wherein average timing advance (TA) or round trip time (RTT) is used in estimation of said delay in transmission of signals from the station to the mobile user equipment.

12. A method as claimed in any preceding claim, wherein the likely location is determined based on information of the average location of the mobile user equipment.

13. A method as claimed in any preceding claim, wherein the likely location is determined based on at least one signal strength measurement.

14. A method as claimed in any preceding claim, comprising broadcasting in a cell information regarding estimated delay in transmission of signals from the base station of the cell to a mobile user equipment in a location within said cell.

15. A method as claimed in any preceding claim, wherein the estimated delay in transmission of the signal from the station to the mobile user equipment is determined based on information of at least one further condition regarding the radio propagation conditions of signals transmitted from the station to the mobile user equipment.

16. A system for determining the location of a mobile user equipment, comprising:

a positioning system comprising entities arranged to signal information, the arrangement being such that the mobile user equipment may receive and use the information from said entities when determining its location;

a station of a communication system arranged for transmission of information signals to the mobile user equipment;

location estimation means for provision of an estimate of the likely location of the mobile user equipment relative the station;

processor means for provision of an estimate of the delay between transmission of an information signal from the station and reception of said information signal at the mobile user equipment based on said estimated location; and

location determination means for determining the location of the mobile user equipment based on signals from the entities of the position system, assistance data from the station, said assistance data comprising information about the timing of the positioning system and said estimate of the delay.

17. A mobile user equipment, comprising:

a first receiver for receiving information signals from entities of a positioning system for use in location determinations by the mobile user equipment;

a second receiver for receiving signals from a station of a communication system; and

location determination means for determining the location of the mobile user equipment based on signals from the entities of the position system, assistance data signal received from the station, said assistance data comprising

information about the timing of the positioning system, and a computed difference between the time of transmission of said assistance data signal from the station and the time of reception of said assistance data signal at the mobile user equipment, said difference being computed based on an estimated likely location
5 of the mobile user equipment relative to the base station.